

WHAT IS CLAIMED IS:

1. A method of forming an outsert having product information printed thereon, said method comprising:

(a) making a first fold in a first direction in a sheet of paper having product information printed thereon with a first folding apparatus by a method comprising:

(a1) feeding a sheet of paper having a leading edge, a trailing edge, and product information printed thereon into said first folding apparatus until said leading edge of said sheet of paper makes contact with a first stop member of said first folding apparatus;

(a2) continuing to feed said sheet of paper through said first folding apparatus with said leading edge of said sheet of paper in contact with said first stop member of said first folding apparatus so that an intermediate portion of said sheet of paper between said leading edge and said trailing edge forms a buckled portion; and

(a3) continuing to feed said sheet of paper through said first folding apparatus to cause said buckled portion of said sheet of paper to pass between a first pair of folding rollers of said first folding apparatus to form a first fold in said sheet of paper in said first direction;

(b) making at least one additional fold in said sheet of paper in a direction parallel to said first fold and said first direction with said first folding apparatus to form a first folded article having a leading edge and a trailing edge by a method comprising:

(b1) continuing to feed said sheet of paper through said first folding apparatus until a leading portion of said sheet of paper coinciding with said first fold makes contact with a second stop member of said first folding apparatus;

(b2) continuing to feed said sheet of paper through said first folding apparatus with said leading portion of said sheet of paper in contact with said second stop member of said first folding apparatus so that an intermediate portion of said sheet of paper between said leading portion and said trailing edge of said sheet of paper forms a buckled portion; and

(b3) continuing to feed said sheet of paper through said first folding apparatus to cause said buckled portion between said leading portion of said sheet of paper and said trailing edge of said sheet of paper to pass between a second pair of folding rollers of said first folding apparatus to form a second fold in said sheet of paper in said first direction;

(c) making a first fold in said first folded article in a second direction perpendicular to said first direction with a second folding apparatus by a method comprising:

(c1) feeding said first folded article into said second folding apparatus until said leading edge of said first folded article makes contact with a first stop member of said second folding apparatus;

(c2) continuing to feed said first folded article through said second folding apparatus with said leading edge of said first folded article in contact with said first stop member of said second folding apparatus so that an intermediate portion of said first folded article between said leading edge of said first folded article and said trailing edge of said first folded article forms a buckled portion; and

(c3) continuing to feed said first folded article through said second folding apparatus to cause said buckled portion of said first folded article to pass between a first pair of folding rollers of said second folding apparatus to form a first fold in said first folded article in said second direction;

(d) making at least one additional fold in said first folded article in said second direction with said second folding apparatus to form a second folded article having a leading edge and a trailing edge by a method comprising:

(d1) continuing to feed said first folded article through said second folding apparatus until a leading portion of said first folded article coinciding with said first fold in said first folded article makes contact with a second stop member of said second folding apparatus;

(d2) continuing to feed said first folded article through said second folding apparatus with said leading portion of said first folded article in contact with said second stop member of said second folding apparatus so that an intermediate portion of said first folded article between said leading portion of said first folded article and said trailing edge of said first folded article forms a buckled portion; and

(d3) continuing to feed said first folded article through said second folding apparatus to cause said buckled portion between said leading portion of said first folded article and said trailing edge of said first folded article to pass between a second pair of folding rollers of said second folding apparatus to form a second fold in said first folded article in said second direction;

(e) depositing an adhesive on a portion of said second folded article; and

(f) folding said second folded article by making a final fold in said second folded article to form an outsert, said final fold being parallel to said second direction and being

made so that said adhesive holds said outsert in a substantially closed position so that said outsert has no exposed unfolded exterior edges that lie in a direction parallel to said final fold, said final fold being made with a third folding apparatus by a method comprising:

(f1) feeding said second folded article into said third folding apparatus until said leading edge of said second folded article makes contact with a stop member of said third folding apparatus;

(f2) causing a movable member of said third folding apparatus to make contact with and move an intermediate portion of said second folded article towards a pair of adjustably-spaced folding rollers that are spaced apart from each other by a distance that is within a range defined by a lower boundary of 0.25 inches and an upper boundary of 0.35 inches; and

(f3) continuing to feed said second folded article through said third folding apparatus so that said intermediate portion of said second folded article passes between said pair of folding rollers of said third folding apparatus to form said final fold in said second folded article.

2. A method as defined in claim 1 additionally comprising automatically conveying said first folded article from said first folding apparatus to said second folding apparatus.

3. A method as defined in claim 1 wherein (c3) comprises feeding said first folded article between a first folding roller and a second folding roller of said second folding apparatus and wherein (d3) comprises feeding said first folded article between said second folding roller and a third folding roller of said second folding apparatus.

4. A method as defined in claim 1 additionally comprising adjusting the position of one of said folding rollers of said third folding apparatus so that said distance between said outer diameters of said folding rollers of said third folding apparatus is greater than 0.35 inches.

5. An outsert-forming apparatus that forms outserts having printed product information thereon, said apparatus comprising:

a first folding unit that forms a first folded article from a sheet of paper having printed information thereon by making a plurality of folds in said sheet of paper, each of said folds being parallel to a first direction, said first folding unit comprising:

- a first frame member;

- a second frame member spaced from said first frame member;

- a first pair of folding rollers rotatably mounted between said first and second frame members;

- a first stop member associated with said first pair of folding rollers,

- said first stop member and said first pair of folding rollers being positioned to cause a leading edge of said sheet of paper to contact said first stop member so that continued feeding of said sheet of paper with said leading edge of said sheet of paper in contact with said first stop member causes an intermediate portion of said sheet of paper to buckle and be passed between said first pair of folding rollers to make a first fold in said sheet of paper;

- a second pair of folding rollers rotatably mounted between said first and second frame members; and

- a second stop member associated with said second pair of folding rollers,

- said second stop member and said second pair of folding rollers being positioned to cause a leading portion of said sheet of paper to contact said second stop member so that continued feeding of said sheet of paper with said leading portion of said sheet of paper in contact with said second stop member causes an intermediate portion of said sheet of paper to buckle and be passed between said second pair of folding rollers to make a second fold in said sheet of paper parallel to said first fold;

a second folding unit operatively coupled to receive said first folded article, said second folding unit forming a second folded article by making a fold in said first folded article in a direction parallel to a second direction, said second direction being perpendicular to said first direction, said second folding unit comprising:

- a first frame member;

- a second frame member spaced from said first frame member of said second folding unit;

- a first pair of folding rollers rotatably mounted between said first and second frame members of said second folding unit;

- a first stop member associated with said first pair of folding rollers of said second folding unit,

said first stop member of said second folding unit and said first pair of folding rollers of said second folding unit being positioned to cause a leading edge of said first folded article to contact said first stop member of said second folding unit so that continued feeding of said first folded article with said leading edge of said first folded article in contact with said first stop member of said second folding unit causes an intermediate portion of said first folded article to buckle and be passed between said first pair of folding rollers of said second folding unit to make a first fold in said first folded article in said second direction;

- a second pair of folding rollers rotatably mounted between said first and second frame members of said second folding unit; and

- a second stop member associated with said second pair of folding rollers of said second folding unit;

- said second stop member of said second folding unit and said second pair of folding rollers of said second folding unit being positioned to cause a leading portion of said first folded article to contact said second stop member of said second folding unit so that continued feeding of said first folded article with said leading portion of said first folded article in contact with said second stop member of said second folding unit causes an intermediate portion of said first folded article to buckle and be passed between said second pair of folding rollers of said second folding unit to make a second fold in said first folded article parallel to said second direction;

- an adhesive applicator that applies adhesive to a portion of said second folded article;

and

a final folding unit operatively coupled to receive said second folded article, said final folding unit forming an outsert from said second folded article by making a final fold parallel to said second direction, said final fold being made so that said adhesive holds said outsert in a substantially closed position so that said outsert has no exposed unfolded exterior edges that lie in a direction parallel to said final fold, said final folding unit comprising:

- a first frame member;

- a second frame member spaced from said first frame member of said final folding unit;

- a first folding roller mounted between said first and second frame members of said final folding unit;

- a second folding roller disposed adjacent said first folding roller, said first and second folding rollers having a nip therebetween, said first and second folding rollers

causing said final fold to be made when said second folded article passes between said first and second folding rollers, each of said first and second folding rollers having an outer diameter, at least one of said first and second folding rollers having a position that is adjustable to allow a distance between said outer diameter of said first folding roller and said outer diameter of said second folding roller to be adjusted to be within a range defined by a lower boundary of 0.25 inches and an upper boundary of 0.45 inches; and

a movable member that makes contact with a portion of said second folded article to move said portion of said second folded article towards said nip between said first and second folding rollers.

6. An outsert-forming apparatus as defined in claim 5 wherein only one of said first and second folding rollers of said final folding unit has a position that is adjustable.

7. An outsert-forming apparatus as defined in claim 5 wherein said first pair of folding rollers of said second folding unit comprises a first folding roller and a second folding roller and wherein said second pair of folding rollers of said second folding unit comprises said second folding roller and a third folding roller.

8. An outsert-forming apparatus as defined in claim 5 wherein at least one of said first and second folding rollers of said final folding unit is adjustable to provide a distance between said outer diameters of said folding rollers of said final folding unit to be greater than 0.45 inches.